Mrs. Graf

Monthly News Letter

Bureau of Agricultural Engineering

U. S. DEPARTMENT OF AGRICULTURE

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Mr. McCrory recently completed an extended field trip during which he conferred with Wm. V. Taylor of the Bureau of Biological Survey at Des Moines, Iowa, regarding the status of the cooperative migratory waterfowl projects; with E.M. Mervine at Fort Collins, Colo., regarding the sugar beet machinery work and with R. L. Parshall relative to methods of measuring water. At Salt Lake City, Utah, he conferred with L.M. Winsor regarding his work on Biological Survey waterfowl projects and at Davis, Calif., he discussed the studies relating to the use of mechanical equipment in sugar beet production with Prof.H. B. Walker and S.W. McBirney. He also visited the irrigation division headquarters at Berkeley, Calif., and conferred with H. F. Blaney at Los Angeles, and C.A. Taylor at Pomona, Calif. While at Los Angeles he had an exceptional opportunity to view the flood in that area which reached its crest while he was there.

On his return he stopped at Auburn, Ala., to inspect the work of the tillage machinery project under the supervision of J.W. Randolph.

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Attention is invited to Paragraph 1834 of the Department Regulations regarding the marking of vehicles. It will be noted from this paragraph that trucks must be marked by a union shield not less than ten by ten inches in size and passenger cars by a union shield not less than five by five inches in size.

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J.E. Miller left Washington February 28 for Lansing, Michigan, to investigate conditions preparatory to drawing up plans and specifications for a new poultry laboratory to be erected at the Michigan State College by the Bureau of Animal Industry.

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Lewis A. Jones made a trip to Milwaukee, Wisc., during the first week of March, to confer with John G. Sutton, District Engineer, C.C.C., Central Region, on the work program of the C.C.C. drainage camps in that region. On his return trip to Washington he stopped off at Bowling Green, Ohio, to inspect the site of a proposed side camp in Ottawa County to be operated in connection with the Bowling Green Camp, and to discuss proposed work projects with Acting District Inspector Geo. S. Cairns and Camp Superintendent H. C. Carstensen.

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Mr. Jones left Washington March 18, for Belle Glade, Florida, where he spent a week reviewing the drainage research work in progress in that region by B. S. Clayton. In company with Mr. Clayton he went to Gainesville, Florida, for conference with Dr. Wilmon Newell, Director of the Agricultural Extension Service, and Dr. R. V. Allison, Head of the Soil Department, University of Florida, relative to the cooperative project on the Control of Water in Peat Soils of Florida.

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Several papers relative to work of the Drainage Camps were presented by the Central District personnel at the annual meeting of the Iowa Engineering Society at Iowa City, March 9 and 10. These were "Drainage Camps in Iowa" by George Burnet, Inspector of the Iowa Camps and "Pumping Plants for Drainage Districts" by H. E. Berger, Superintendent of the Oakville Camp.

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Authorization for the establishment of two side-camps for Ohio has been received within the last month. One has been established at Sand Beach in Ottawa County as a side camp to the Bowling Green Camp, to undertake needed maintenance on outlets to ditches rehabilitated in Wood County by the camp. A 38-man side-camp to the London, Ohio Camp will be established at the abandoned Delaware Camp on or about April 1 to finish work left uncompleted when the camp was abandoned in December.

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Thaws and rain preceding the usual spring flood periods have resulted in the undertaking of requested emergency work by the Whiting, Iowa; Havana, Illinois; and Delta, Missouri camps during the last month. Due to high water in the St. Francis River, the Hayti Camp has been prepared to provide immediate emergency aid if required.

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Fred F. Shafer, CCC Drainage Inspector with headquarters at Columbus, Ohio, spent the month of March making inspections of the operation and work projects of the five CCC drainage camps located in Delaware and Maryland.

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A. A. Young and Harry F. Blaney completed the manuscript for a proposed Government bulletin on "Use of Water by Native Vegetation", embodying the results of studies made by the Division of Irrigation on consumptive use of water by a number of species of native vegetation, and reviewing some of the results of investigations on the subject by other agencies. Cooperating in the carrying on of experiments have been the California Division of Water Resources (Department of Public Works), and the Colorado and Oregon Agricultural Experiment Stations.

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The Division also conducted studies in the Upper Rio Grande Basin in cooperation with the States of Colorado, New Mexico and Texas, under agreement with the National Resources Committee. Until recently little attention has been given to use of water by non-crop plants.

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Experiments to determine the amount of water used by such plants as weeds, willows, cat-tails, tules, etc., have demonstrated that they use from 50 to 100 per cent more water than most crop plants. However, the authors do not lose sight of the value of native vegetation in aiding the penetration of water into the soil, holding sandy soils in place against wind action, and combatting soil erosion.

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For studying subsoil water behavior, Dean W. Bloodgood completed the installation of water level recorders at representative locations on the Reservation Division of the Yuma Reclamation Project. At the present time there are nine such installations and one more is to be installed at a deep well between the All-American Canal and the present High Line Canal. The wells range from 16 to 40 inches in diameter and are equipped with 14 to 30-inch copper floats. The recorder wells are to be used in conjunction with about 160 other pipe observation test wells and staff gages in studying subsoil water behavior. Seven months' records have been obtained from most of these wells and about two years' records from 18 pipe wells and 5 recorder wells. By the time water is turned into the All-American Canal for priming purposes next July or August, about a year's record will be available for the entire Reservation Division.

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R. L. Parshall reports that apparatus is being constructed at the Bellvue, Colorado, hydraulic laboratory to investigate the distribution of negative pressures along the under side of the horizontal gate shelf of the adjustable tube orifice meter. The purpose of this study is to determine the possibility of developing a means of calculating the discharge through the meter without measuring directly the effective pressure heads.

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In connection with the Spokane River Flood Control Report, L. T. Jessup compiled annual run-off data (in terms of inches depth) for a 45-year period; compiled a similar table with corrections for storage in Coeur d'Alene Lake; and made a capacity table for that lake. A study was made of the relation between stage of the lake and discharge of Spokane River at Spokane; and an estimate was made of the stage of Coeur d'Alene Lake for certain run-off data (depth in inches) from December 1 to June 15 for a 45-year period.

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With reference to his study of irrigation problems in citrus orchards, Colin A. Taylor reports that all of the transpiration-use of water material was worked over and expressed as a ratio of the loss of water from the shallow black-pan evaporimeter. A ratio of 0.33 was established for the relation of transpiration by mature citrus to evaporation, for the eastern part of Los Angeles County. The average length of the irrigation season was established as 232 days extending from April 9 to November 27. During this period the evaporation amounts to 55 inches. A range of 50 to 60 inches covers most seasons. On the

average the equivalent of 18 inches of available moisture must be supplied as carry-over from winter rains or by irrigation.

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O. W. Israelsen completed a report on "Studies of Irrigation Efficiencies in Utah County".

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Monthly reports of snow cover conditions for the various watersheds of the Western States, preparation of maps of snow courses and weekly radio broadcasts of winter sports conditions represent the chief activity of the snow survey project. J. C. Marr completed a map showing the Columbia River Basin snow course network, with all courses identified as to name and location - copies of which were to be sent out with the March 1 forecast report. R. L. Parshall sent out instructions, sketch maps, and record forms to forest supervisors who were to be concerned with the March 1 observations, and purchased additional snowshoes and skis which were sent to those who were to make the March 1 observations. Carl Rohwer made a study of the literature of snow surveying, devised forms for keeping the snow survey and streamflow records, mapped the drainage areas of Arizona, located gaging stations on the map, and compiled streamflow and snow survey records. L. T. Jessup made maps of seven new snow courses. M. R. Lewis held two conferences with the Oregon State Engineer, at which a start was made toward the study of the correlation of snow survey data and runoff.

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Carl Rohwer submitted the revised manuscript for a Government bulletin on "Irrigation Wells."

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J. W. Randolph reports that the samples of cotton for the 1937 season from the cotton production machinery project at Prattville field were ginned at the Bureau's ginning laboratories under C.A. Bennett's supervision. The following points were found to be of pertinent interest regarding the first and second picking. There exists a direct relationship between yield of seed cotton and energy required for ginning, and between motes and the apparent specific gravity of the soil. On the other hand there is an inverse correlation between yield of seed cotton and motes. The correlation factors obtained indicated that chance accounted for less than 1 per cent of the relationship which is exceptionally good. The correlation between the energy required to gin the cotton from the second picking and the yield was not so significant. It is of interest to note that relationships between motes and yield and motes and apparent specific gravity indicate that there is an inverse relationship between yield and apparent specific gravity. This substantiates the data previously reported.

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Mr. Emery de Razso of the Hungarian School of Agriculture, visited the Tillage Machinery Laboratory. Mr. E. W. Lehmann and son also spent several hours at the laboratory. Mr. Harry L. Brown, Assistant Secretary of Agriculture, stopped at the laboratory to see the work that is being undertaken and to watch a movie concerning moldboard plow operation.

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The worth of the variable depth method of planting is now so well established that the John Deere Company carries a variable depth planter as a regular stock implement for the trade.

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S. W. McBirney reports the multiple row single seed sugar beet planter is being completed and will be ready for use to put in a series of plots as soon as the weather settles and the ground is ready for planting.

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L. G. Schoenleber took a special grain drill to eastern Maryland on March 14, for the purpose of conducting fertilizer-placement experiments with cannery peas. One of the main objectives is to determine the effect of method of fertilizer application on the size and quality of the peas.

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W. H. Redit left Washington on March 18 in connection with the planting operations of the fertilizer placement studies with cotton and tobacco in several southeastern states. His first stop is Tifton, Georgia.

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C. F. Kelly has left Washington for Fargo, N. Dak., to make final observations on the experimental wheat bins there. Some of the wheat will be held for long-time storage observations. The moisture content of some of the wheat is relatively high but it has been decided not to attempt to dry it before returning it to the State Mill and Elevator. Mr. Kelly is constructing a drying machine at Arlington Farm.

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Two types of atomizing oil burners for orchard heating which promise to be clean-burning have been constructed at Baltimore by A. H. Senner. One is an air atomizing type with a large horizontal cylinder in which combustion takes place. Some of the vaporizing burners being developed and tested in California have been received for observation at the Baltimore laboratory.

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A recent inspection of the canvas covered wagon shed at Beltsville showed that the fabric used to cover the walls is in good condition after approximately five years of service. Some of these do not need refinishing. White lead, metallic zinc and aluminum paints have been successful. The fabric on the roof is not in such good shape. Portions treated with white lead are in fair condition. But those treated with Burnot fire retardent, emulsified asphalt, rubber and aluminum paint have rotted and need replacing. One strip used to repair the roof about 3 years ago that was treated with metallic zinc paint is in poor condition. The early failure of one or two roof panels, allowing moisture to get under the canvas, doubtless accounts for the poor condition of the roof.